VDH VIRGINIA DEPARTMENT OF HEALTH
Protecting You and Your Environment
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Cyanobacteria

What are cyanobacteria?

Blue-green bacteria or cyanobacteria are single-celled organisms that naturally exist in fresh or salt waters. They use sunlight to make their food and grow rapidly in water where there are a lot of available nutrients. When environmental conditions are favorable, blue-green bacteria can reproduce rapidly and cause an "algal bloom" to occur. This may form a visible film or scum on the surface of the water. Cyanobacterial blooms are often green or blue-green in color, although they can sometimes be red or brown.

What effects do blue-green bacterial blooms have on humans?

Some blue-green bacteria can produce toxins that are harmful to humans. The most common ways people can be exposed to these toxins include swallowing water, direct skin contact, and breathing aerosolized bacterial toxins that are in the air. If water containing blue-green bacterial toxin or cell components is swallowed, gastrointestinal symptoms such as stomach pain, nausea, vomiting, and diarrhea can occur. If direct contact is made, skin and eye irritation can occur. Respiratory irritation can result from breathing air that contains toxins or cell components. Long-term exposure to blue-green bacterial toxins may result in liver damage.

What effects do blue-green bacterial blooms have on animals and fish?

Mammals and birds can get sick and die from drinking water with a blue-green bacterial bloom. Decaying bacterial blooms may deplete the dissolved oxygen in the water and fish may die as a result. Dense bacterial blooms floating on the surface will also block out sunlight that is needed for other organisms to survive. Some bacterial bloom toxins are directly harmful to fish and can cause fish kills.

What causes blue-green bacterial blooms?

High quantities of nutrients in the water often lead to the formation of bacterial blooms. Nutrients may concentrate in natural bodies of water due to:

- Inadequate water flow or exchange of water when tides change.
- Nutrients such as nitrogen and phosphorus from fertilizers, sewage, or industrial waste that washes into waterways.
- Other environmental impacts due to land clearing, farming, and construction practices.

Is it safe to eat seafood from waters with blue-green bacterial blooms?

Internal organs (innards) of fish and crabs caught in bloom waters may contain toxins and should not be consumed. Eat fish that appear healthy and were caught from waters with no known advisories.

How do I protect myself from the effects of blue-green bacteria?

- Avoid direct contact with water that has unusual color or where blue-green bacteria have been identified, even if the water appears to be clear. This means no swimming, wading, paddling, diving, or water-skiing in affected waters.
- If direct contact has been made with water containing blue-green bacteria, wash off with fresh water. In some cases, skin irritation will appear after prolonged exposure. If symptoms persist, consult your local health care provider.
- Never drink untreated water. Do not drink water from an area where blue-green bacteria have been identified even if it has been treated; boiling the water will not destroy the toxins.
- Do not let children, pets, or livestock come into contact with affected water areas.
- People that are prone to respiratory allergies or asthma should avoid areas with blue-green bacterial blooms.
- Do not eat internal organs of fish caught in affected waters. If you have cleaned fish taken from affected waters, thoroughly wash any of your skin that has come into contact with the fish.
- Use rubber gloves if contact with affected waters must be made.

What is the Commonwealth of Virginia doing about blue-green bacteria?

The Virginia Department of Environmental Quality and the Virginia Department of Health, including the Division of Shellfish Sanitation and Division of Environmental Epidemiology, work together to regularly monitor waters and shellfish growing areas for the presence of blue-green bacterial blooms and their toxins, and to conduct surveillance for human health effects. The public will be notified via the media if a blue-green bacterial bloom that could affect human health is identified.

How does someone report a bacterial bloom and/or a fish kill?

- If you see a bacterial bloom, water that has an abnormal color, or a fish kill, call:
  The Department of Environmental Quality: **(757) 518-2000**

- If you see fish with lesions, call:
  The Virginia Institute of Marine Sciences: (804) 684-7000

- If you are concerned that you have symptoms that are a result of exposure to cyanobacteria, please see your doctor and call your local health department. Telling your doctor about contact with water may help him/her treat the illness properly.

How can I learn more about blue-green bacteria?

For more information, please call the Virginia Department of Health, HABs Hotline at **(888) 238-6154**.

For additional information, please visit:
http://water.epa.gov/scitech/swguidance/standards/criteria/nutrients/cyanohabs.cfm

You may also call your local health department if you have questions or concerns. A directory of local health departments is located at http://www.vdh.virginia.gov/LHD/index.htm.